

ABSTRACT OF THE DISCLOSURE

To provide an X-ray microscopic inspection apparatus capable of performing non-destructive inspection with high resolving power equal to or better than $0.1\text{ }\mu\text{m}$ in a very short period, and largely contributing to the nano-technology fields. In the X-ray microscopic inspection apparatus having X-ray generating means for generating an X-ray by allowing an electron beam from an electron source to impinge on a target for X-ray generation, for inspecting an object to be inspected by utilizing the X-ray, a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun is included as a component element of the X-ray generating means. Further, the apparatus includes a liquid metal electron source using liquid metal or a thermal field emission electron source as the electron source, as a component element of the X-ray generating means. Furthermore, the apparatus includes a target with a heat sink using thin CVD diamond plate as the heat sink of the target, as a component element of the X-ray generating means.